AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the Application.

LISTING OF CLAIMS

Claims 1-2 are cancelled.

3 (Currently amended) ~~The information handling system of Claim 2, An~~ information handling system for mirroring data, comprising:

source data storage configured to store and update data;

first intermediate data storage configured to store data, said first intermediate data storage associated with said source data storage;

target data storage configured to store data;

second intermediate data storage configured to store data, said second intermediate data storage associated with said target data storage; and

mirroring control configured to conduct first cyclic incremental flashcopy of said source data storage, the beginning of each said first cyclic incremental flashcopy comprising a consistency point, said first cyclic incremental flashcopy copied to said first intermediate data storage and synchronously mirrored to said second intermediate data storage, and to conduct a second cyclic incremental flashcopy of said second intermediate data storage to said target data storage, said second cyclic incremental flashcopy beginning in response to completion of said first cyclic incremental flashcopy, the beginning of said second cyclic incremental flashcopy comprising commit of said

consistency point, wherein said mirroring control additionally comprises a loop representing said commit of said consistency point, initiating another first cyclic incremental flashcopy of said source data storage in response to said commit of said consistency point; wherein said mirroring control additionally responds is configured to respond to an update write for said source data storage, determining to determine whether data of said source data storage to be overwritten by said update write is present at said first intermediate data storage and said second intermediate data storage; if so, allowing to allow said update write to be written to said source data storage, and indicating to indicate said update write in a future flashcopy map.

4.(Currently amended) The information handling system of Claim 3, wherein said mirroring control employs is configured to employ said future flashcopy map for conducting the next first cyclic incremental flashcopy of said source data storage.

5.(Currently amended) The information handling system of Claim 4, wherein said mirroring control conducts is configured to conduct said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and, said mirroring control is configured to, in response to completion of mirroring of said grains indicated by said commit of said consistency point, updates update said first flashcopy map with said future flashcopy map.

6.(Currently amended) The information handling system of Claim 4, wherein said mirroring control conduets is configured to conduct said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage; and, said mirroring control merges is configured to merge said first flashcopy map with said future flashcopy map to generate a new first flashcopy map, and resets said future flashcopy map; the beginning of a new first cyclic incremental flashcopy comprising a consistency point.

7.(Currently amended) The information handling system of Claim [[1]] 3, wherein said target data storage and said second intermediate data storage are remotely located with respect to locally located said source data storage and said first intermediate data storage; and additionally comprising at least one interface at said target data storage and said second intermediate data storage; and at least one interface at said source data storage and said first intermediate data storage; said interfaces for interfacing configured to interface with communication systems for communicating between said remote and local locations.

Claim 8 is cancelled.

9.(Currently amended) ~~The information handling system of Claim 8,~~ An information handling system for providing data for mirroring a source data storage to a target data storage, comprising:

said source data storage configured to store and update data;

first intermediate data storage configured to store data, said first intermediate data storage associated with said source data storage; and

mirroring control configured to conduct first cyclic incremental flashcopy of said source data storage, the beginning of each said first cyclic incremental flashcopy comprising a consistency point, said first cyclic incremental flashcopy copied to said first intermediate data storage and synchronously mirrored to a second intermediate data storage for storing data, said second intermediate data storage associated with said target data storage; and

a loop configured to initiate another first cyclic incremental flashcopy of said source data storage in response to a commit of said consistency point, wherein said commit of said consistency point comprises the beginning of a second cyclic incremental flashcopy of said second intermediate data storage to said target data storage, said second cyclic incremental flashcopy beginning in response to completion of said first cyclic incremental flashcopy;

wherein said mirroring control additionally ~~responds~~ is configured to respond to an update write for said source data storage, ~~determining~~ to determine whether data of said source data storage to be overwritten by said update write is present of said first intermediate data storage and said second intermediate data storage, if so, allowing to allow said update write to be written to said source data storage, and ~~indicating~~ to indicate said update write in a future flashcopy map.

10 (Currently amended) The information handling system of Claim **9**, wherein said mirroring control ~~employs~~ is configured to employ said future flashcopy map for conducting the next first cyclic incremental flashcopy of said source data storage.

11 (Currently amended) The information handling system of Claim **10**, wherein said first cyclic incremental flashcopy conducted by said mirroring control employs a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and said mirroring control is configured to, in response to completion of mirroring of said grains indicated by said commit of said consistency point, ~~updating~~ update said first flashcopy map with said future flashcopy map.

12 (Currently amended) The information handling system of Claim **10**, wherein said mirroring control ~~conducts~~ is configured to conduct said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and, said mirroring control ~~merges~~ is configured to merge said first flashcopy map with said future flashcopy map to generate a new first flashcopy map, and ~~resets~~ reset said future flashcopy map the beginning of a new first cyclic incremental flashcopy comprising a consistency point.

13 (Currently amended) The information handling system of Claim [[8]] **2**, wherein said target data storage and said second intermediate data storage are remotely located with respect to locally located said source data storage and said first intermediate data storage, and additionally comprising at least one interface at said target data storage and

said second intermediate data storage ~~for interfacing~~ configured to interface said mirroring control and said source data storage with at least one communication system for communicating between said remote and local locations.

Claims 14-15 are cancelled.

16.(Currently amended) ~~The method of Claim 15, additionally comprising the steps of~~ A method for mirroring data of updatable source data storage to target data storage, said source data storage for storing and updating data, comprising the steps of:

conducting first cyclic incremental flashcopy of said source data storage, the beginning of each said first cyclic incremental flashcopy comprising a consistency point;

said first cyclic incremental flashcopy copied to a first intermediate data storage, and synchronously mirrored to a second intermediate data storage;

a loop initiating another first cyclic incremental flashcopy of said source data storage in response to a commit of said consistency point wherein said commit of said consistency point comprises the beginning of a second cyclic incremental flashcopy of said second intermediate data storage to said target data storage, said second cyclic incremental flashcopy beginning in response to completion of said first cyclic incremental flashcopy; and

in response to an update write for said source data storage, determining whether data of said source data storage to be overwritten by said update write is present at said synchronously mirrored first intermediate data storage and said second intermediate data storage;

if so, allowing said update write to be written to said source data storage, and indicating said update write in a future flashcopy map.

17.(Original) The method of Claim **16**, wherein said future flashcopy map is employed in said step of conducting a first cyclic incremental flashcopy for the next first cyclic incremental flashcopy of said source data storage.

18.(Original) The method of Claim **17**, wherein said first cyclic incremental flashcopy step employs a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and additionally comprises the step of, in response to completion of mirroring of said grains indicated by said commit of said consistency point, updating said first flashcopy map with said future flashcopy map, to thereby employ said updated first flashcopy map in said step of conducting a first cyclic incremental flashcopy for the next first cyclic incremental flashcopy of said source data storage.

19.(Original) The method of Claim **17**, wherein said first cyclic incremental flashcopy step employs a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage and additionally comprises the step of merging said first flashcopy map with said future flashcopy map to generate a new first flashcopy map, and resetting said future flashcopy map, the beginning of a new first cyclic incremental flashcopy comprising a consistency point.

Claims 20-21 are cancelled.

22.(Currently amended) ~~The computer program product of Claim 21, additionally comprising computer readable program code causing said at least one programmable computer processor to:~~ A computer program product usable with at least one programmable computer processor having computer readable code embodied therein, said at least one programmable computer processor for controlling mirroring data of updatable source data storage to target data storage, said computer program product comprising:

computer readable program code causing said at least one programmable computer processor to conduct first cyclic incremental flashcopy of said source data storage, the beginning of each said first cyclic incremental flashcopy comprising a consistency point; said first cyclic incremental flashcopy copied to a first intermediate data storage and synchronously mirrored to a second intermediate data storage; and

computer readable program code causing said at least one programmable computer processor to conduct a loop initiating another first cyclic incremental flashcopy of said source data storage in response to a commit of said consistency point; wherein said commit of said consistency point comprises the beginning of a second cyclic incremental flashcopy of said second intermediate data storage to said target data storage, said second cyclic incremental flashcopy beginning in response to completion of said first cyclic incremental flashcopy; and

computer readable program code causing said at least one programmable computer processor to, in response to an update write for said source data storage;

determine whether data of said source data storage to be overwritten by said update write is present at said synchronously mirrored first intermediate data storage and said second intermediate data storage;

if so, allow said update write to be written to said source data storage, and indicate said update write in a future flashcopy map.

23.(Original) The computer program product of Claim 22, wherein said computer readable program code causing said at least one programmable computer processor to conduct said first cyclic incremental flashcopy of said data storage, employs said future flashcopy map for conducting said first cyclic incremental flashcopy for the next first cyclic incremental flashcopy of said source data storage.

24.(Original) The computer program product of Claim 23, wherein said computer readable program code causing said at least one programmable computer processor to conduct said first cyclic incremental flashcopy of said data storage, employs a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage; and

said computer program product additionally comprising computer readable program code causing said at least one programmable computer processor to, in response to completion of mirroring of said grains indicated by said commit of said consistency point, update said first flashcopy map with said future flashcopy map, to thereby employ said updated first flashcopy map in said step of conducting a first cyclic incremental flashcopy for the next first cyclic incremental flashcopy of said source data storage.

25.(Original) The computer program product of Claim 23, wherein said computer readable program code causing said at least one programmable computer processor to conduct said first cyclic incremental flashcopy of said data storage, employs a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage; and

said computer program product additionally comprising computer readable program code causing said at least one programmable computer processor to merge said first flashcopy map with said future flashcopy map to generate a new first flashcopy map, and reset said future flashcopy map, the beginning of a new first cyclic incremental flashcopy comprising a consistency point.

Claim 26 is cancelled.

27.(Currently amended) ~~The mirroring controller of Claim 26,~~ A mirroring controller configured to control mirroring data of updatable source data storage to target data storage, said source data storage for storing and updating data, said mirroring controller comprising:

mirroring control configured to conduct first cyclic incremental flashcopy of said source data storage, the beginning of each said first cyclic incremental flashcopy comprising a consistency point, said first cyclic incremental flashcopy copied to a first intermediate data storage for storing data, and synchronously mirrored to a second intermediate data storage for storing data, and, to conduct a loop initiating another first

cyclic incremental flashcopy of said source data storage in response to a commit of said consistency point; wherein said commit of said consistency point comprises the beginning of a second cyclic incremental flashcopy of said second intermediate data storage to said target data storage, said second cyclic incremental flashcopy beginning in response to completion of said first cyclic incremental flashcopy; wherein said mirroring control additionally responds is configured to respond to an update write for said source data storage, determining whether data of said source data storage to be overwritten by said update write is present at said first intermediate data storage and said second intermediate data storage, if so, allowing said update write to be written to said source data storage, and indicating said update write in a future flashcopy map.

28. (Currently amended) The mirroring controller of Claim **27**, wherein said mirroring control employs is configured to employ said future flashcopy map for conducting the next first cyclic incremental flashcopy of said source data storage.

29. (Currently amended) The mirroring controller of Claim **28**, wherein said mirroring control conducts is configured to conduct said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and, said mirroring control is configured to, in response to completion of mirroring of said grains indicated by said commit of said consistency point, updates update said first flashcopy map with said future flashcopy map.

30.(Currently amended) The mirroring controller of Claim 28, wherein said mirroring control ~~conducts~~ is configured to conduct said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and, said mirroring control ~~merges~~ is configured to merge said first flashcopy map with said future flashcopy map to generate a new first flashcopy map, and ~~resets~~ reset said future flashcopy map the beginning of a new first cyclic incremental flashcopy comprising a consistency point.